

Nomination for an

ENGINEERING HERITAGE MARKER

for the

SS YOUNG AUSTRALIAN

**A Paddle Steamer wrecked in the Roper River
in 1872**



July 2010

**Engineering Heritage Australia (North)
Northern Division
Engineers Australia**

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Heritage Recognition Nomination Form

Name of work: **SS Young Australian**

The above-mentioned work is nominated for the award of **Engineering Heritage Marker**

Location, including address and map grid reference if a fixed work:
**Roper River, 6 km west of the Aboriginal Community of Ngukurr
14°45'09.00"S, 134°40'50.4"E**

Owner:

- a) Actual wreck site: **Northern Territory Government, Department of Planning and Infrastructure.**
- b) Site for erection of marker: **Northern Territory Government, Department of Natural Resources, Environment and the Arts.**

The owners have been advised of this nomination and letters of agreement are attached at Appendix 5.

Access to site: **By boat only from a boat ramp located 1.25 km downstream from the wreck site on the south bank of the river and accessed from the Nathan River Road.**

This nomination is supported and is recommended for approval:

Signed:

**Bronwyn Russell
Executive Director
Northern Division
Engineers Australia**

.....

**Trevor C Horman
Chair
Engineering Heritage Australia (North)**

Date: 12 July 2010

After signing, forward to:
The Administrator
Engineering Heritage Australia
Engineers Australia
Engineering House
11 National Circuit
BARTON ACT 2600

Heritage Recognition Nomination Assessment Form

1. BASIC DATA

Item Name:

Wreck of the steam paddle ship *SS Young Australian*.

Other/Formal Names:

None known

Location (grid reference if possible):

The wreck is located near the northern bank of the Roper River 1.8 km west of the community of Ngukurr. Topographic map reference: 1:100,000 – map 5868, Urapunga, AGD 1966, AMG Ref: 465641E – 8369037N.

Approximate latitude and longitude:

Latitude: 14°45'09.00" South

Longitude: 134°40'50.4" East

Address:

Near the northern bank of the Roper River 6.0 km upstream (west) from Ngukurr Aboriginal Community

Suburb/Nearest Town:

Ngukurr Aboriginal Community

State:

Northern Territory

Local Govt. Area:

Unincorporated land (as at June 2008)

Owner:

- 1) Actual wreck site: **Northern Territory Government, Department of Planning and Infrastructure.** The land is NT Portion 04352 which consists of the bed and banks of the Roper River from Roper Bar to the river mouth. This land is subject to a Land Claim No.70.
- 2) Site for erection of marker: 1.25 km downstream from the wreck site and on the south bank of the river. This site is a car park and boat ramp under the responsibility of the **Northern Territory, Department of Natural Resources, Environment, the Arts and Sport.**

Current Use:

Wreck site has no current use. Abandoned since 1873

Former Use:

Steam tug on the Roper River for the construction of the Overland Telegraph Line

Designer:

Not known

Maker/Builder:

Not known. More research is needed. Known to be built at Blackwall, England

Year Started:

1853

Year Completed:

1853

Physical Description:

Young Australian, listed in August 1860 on the Register of British Ships, Main Register subsequent to the Merchant Shipping Act 18534, Port Adelaide (NAA: A7509). The official registration number of the vessel was 40537.

Refer to Appendix 1 for details of the ship.

The *Young Australian* was rigged as a schooner and was also steam powered with a single side lever "grasshopper" steam engine mounted amidships direct driving the paddle shaft. The paddle wheels had fixed floats.

The ship was of 90 tons with a gross tonnage of 92.59 tons under sail and 58.04 tons if allowance made for steam machinery.

Physical Condition:

The physical condition of the ship at the time of purchase in late 1871 at Adelaide is not known. The ship was 18 years old at that time and its work history is not known.

It is known that some repairs were carried out on the long journey from Adelaide to the Roper River. These could only be regarded as routine due to the age of the ship and the length of the passage.

Modifications and Dates:

None known.

Historical Notes:

The ship is known to have been built at Blackwall which was a very busy shipbuilding centre around 1853. The Thames Ironworks, which built many of the renowned ships of the day, is at Blackwall. The shipyard which built the *Young Australian* has not been identified.

Nothing is known of the vessel until it was purchased in Adelaide. The vessel was purchased from Mr William Wells on 22 December 1871 for £1000 by A Blyth, Treasurer of the Province of South Australia and actual transfer occurred when the vessel arrived in Port Darwin on 18 January 1872.

Heritage Listings (information for all listings):

Name:	Listing under the Northern Territory Heritage Conservation Act 1991
Title:	Wreck of <i>Young Australian</i>
Number:	Nil
Date:	Gazettal date: 18 December 2002 Northern Territory Government Gazette No. G50.

2. ASSESSMENT OF SIGNIFICANCE

Historic Phase:

The Overland Telegraph Corridor

John McDouall Stuart first pioneered a route from the south coast of Australia to the north through what is now South Australia and the Northern Territory. After several expeditions he finally reached the north coast east of the present location of Darwin. He considered that he had discovered a reliable route by 1862 which he had mapped, to be practical for other uses. In particular he had found a route which included many locations where there was water¹.

Less than a decade after this series of discoveries along a route, which exceeded 3000 km, over country ranging from severe desert to tropical savannah Sir Charles Todd looked for a route for his Overland Telegraph Line. Todd was greatly influenced by Stuart's findings and he mapped out a route for the telegraph line which had great similarity to Stuart's route.

So began a series of incredible events which, over the course of 145 years, has seen the development of one of the world's great transportation corridors, following very much the route that Stuart laboriously mapped. In July 1941, at the recommendation of the Governor General of Australia, Baron Gowrie VC, the highway was named the “Stuart Highway”. There was apparently no ribbon-cutting ceremony to celebrate the connection of the highway to the name of Stuart.

The corridor has grown to be far more than a telegraph line or a highway.

The building of the Overland Telegraph Line not only established the first continuous item of infrastructure on the route but established a series of telegraph stations, most of which eventually became the catalyst for towns and villages. The iconic Alice Springs, about half way along the route from Adelaide to Darwin, is now unmistakably connected to the Overland Telegraph, not so much by the remaining buildings of the old telegraph station but by its very name as the word “Alice” celebrates Alice Todd, the wife of Sir Charles Todd.

The very act of building the Overland Telegraph Line saw the crude beginning of what would eventually evolve, grandfathers axe like, into the broad and almost flood-proof strip of bitumen of the modern Stuart Highway with its National Highway status and an array of towns, villages, wayside stops and lay-bys which together make it a workable highway over vast distances and provide a living for those who reside along it.

But the story is never ending. At any instant work is going on somewhere along the highway to upgrade and maintain it.

In the beginning it was the need to move men and materials to the construction parties for the Overland Telegraph Line which established the first rough track along the telegraph route. From then on, for the roughly one hundred years that the telegraph operated, it had to be maintained by linemen working out of the telegraph stations and towns.

Not long after the establishment of the Overland Telegraph the dream of a railway paralleling its route emerged. At that time the era of the great railway builders was still in full swing and a railway connecting the north and south coasts of Australia was a logical ambition. A gold rush at Pine Creek, just 200 km inland from Palmerston (as the present-day Darwin was then called) saw the beginning of the realisation of that dream. The Palmerston and Pine Creek Railway was commissioned in 1888/9. The Central Australian Railway was built from the southern end to Oodnadatta, Maree and eventually to Alice Springs in 1929 where it stopped for many decades. At the same time the railway from Pine Creek was gradually extended from Pine Creek to Katherine and eventually to Birdum where it also stopped leaving a gap between the railheads of nearly 1000 km. The Second World War did not see the railway situation improve although the northern part of the railway became a key strategic link as the

¹ Mr Stuart's Track, John Bailey, Pan Macmillan Australia Pty Ltd, 2006

Allies fortified Darwin then pushed north on the long and hazardous road to Tokyo Bay. It took more than another half a century to finish the railway although a first step was made in 1980 when the Tarcoola to Alice Springs standard gauge railway was built to replace the old and unreliable 3'6" (narrow gauge) line further to the east.

Eventually in 2002 the Alice Springs to Darwin standard gauge railway was completed and at last trains could run from Adelaide to Darwin on a heavily-constructed, all-weather, standard gauge railway line. Now, it is possible to stand on the platforms of old railway stations which waited well over a century for a "through" train to arrive and watch long freight trains and the iconic "Ghan" passenger train roll through.

Meanwhile the Overland Telegraph has gone except for a few fragments to mark its heritage. It was first replaced in the 1970's by a microwave system with repeater towers at about 30 km intervals and later still by fibre optic cables run beside the highway and capable of delivering amounts of data which would have been unimaginable even to the far-sighted Todd.

Also in the corridor are other elements of a fully integrated transport infrastructure. Much of the northern part of the route is paralleled by a high pressure gas pipeline which carries gas from far-distant gas fields at Palm Valley and Mereenie to the power stations at Channel Island on Darwin Harbour and Weddell. Along the way power stations at Alice Springs, Tennant Creek, Elliott, McArthur River Mine, Katherine and Pine Creek also receive gas.

There are water pipes, electricity transmission lines and local, lower voltage power lines along much of the highway. Along the last 40 miles into Darwin the above ground water pipes from Manton Dam still exist. They have long since been replaced in function by larger buried lines from Darwin River Dam but the old steel pipes still serve a useful distribution purpose.

The importance of the corridor discovered by Stuart, and first pressed into utility service by Todd, cannot be overstated. This is particularly true for the people who live along the iconic route.

Construction of the Overland Telegraph

The SA Parliament passed legislation in October 1870 to build the Overland Telegraph Line and appointed Charles Todd, Post Master-General of South Australia to carry out the work. The total time available to Todd to plan and construct the line was 15 months. The total length of line was 1975 miles, 3178 km. This included an existing section of line between Adelaide and Port Augusta, a distance of 192 miles, 307 km. Todd decided to split the work into three sections:

Southern Section: Port Augusta to Oodnadatta (500 miles, 800 km)

Central Section: Oodnadatta to Tennant Creek (626 miles, 1002 km)

Northern Section: Tennant Creek to Port Darwin (639 miles, 1022 km)

The Northern and Southern sections would be constructed by contract and the Central Section by Government employees.

The SA Government had entered into a contract with the British and Australian Telegraph (BAT) Company and had undertaken that the Overland Telegraph Line section would be completed to connect to their submarine cable to Indonesia by 1 January 1872.

By the end of 1871 with the Wet Season started in the Top End the Southern and Central Sections had been completed leaving a gap between Tennant Creek and a point not far south of Katherine called the Kina River. This gap was 394 miles, 634 km. Work was impossible during the Wet Season as the whole area became impassable with the onset of heavy rains. Todd had a deadline to meet and knew he had to get materials forward as soon as possible for a big push on construction as the Wet Season passed.

He devised a strategy which avoided the transportation of materials over the badly rain affected areas between Port Darwin and the work site. He established a depot near Roper Bar on the Roper River to the east of present-day Mataranka. Materials and manpower were brought up the Roper by ship and offloaded at the Telegraph Depot which he had established. The materials were then moved forward overland on the much shorter track between the Telegraph Depot and Mataranka. This distance was about 170 km. Whilst the Roper River was navigable up to Roper Bar, about 110 km from the mouth of the river it was a dangerous and difficult journey for the sailing ships of the day.

What was needed was a tug to tow the ships up the river for unloading and then back to the river mouth. Todd had the South Australian Government purchase a suitable ship which was called the SS *Young Australian*. The ship was of 58 tons, a side-wheel paddle steamer with a powerful steam engine capable of towing the ungainly merchant ships up and down the winding tidal river.

The *Young Australian* left Adelaide on 23 December 1871, arrived at Darwin on 23 January 1872, left Darwin bound for the Roper on 26 January 1872 and arrived at the Roper Mouth on 1 February 1872. The *Young Australian* has been scheduled to meet the 789 ton iron steamer *Omeo* [213 feet long, 30.5 feet beam, 16.9 feet depth] at the Roper Mouth but was later than expected and the *Omeo* had already proceeded upstream but had run aground. The *Young Australian* proceeded upstream and assisted the *Omeo* to lighten load, later towing her further up river to the Telegraph Depot. The *Young Australian* also towed the barque *Bengal* up to the Telegraph Depot. By 9 February 1872 the three ships were tied up at the Telegraph Depot jetty with the two cargo ships unloading.

By May 1872 the Wet season had subsided and work was able to commence on the construction of the remaining portion of the Northern Section of the Overland Telegraph Line. There were up to 60 wagons in service pulled by teams of bullocks or horses. A construction crew of over 300 men were employed on the task which then proceeded quickly.

On 22 August 1872 the Overland Telegraph crews, headed by Patterson, joined the wires of the northern and southern ends of the line at Frew Ponds thus completing the telegraph circuit between Darwin and Adelaide.

The exchange of messages between Adelaide and London had to wait for the repair of the undersea cable between Darwin and Indonesia. This occurred on 22 October 1872, ending the communications isolation of Australia from Europe for all time. In the end the construction of the Overland Telegraph did not delay the completion of the project, much to the credit of Charles Todd who had kept the pressure on his crews and contractors and had devised the alternative supply route via the Roper River.

The diminutive *Young Australian* had been a key link in this chain of successes using her paddle engine to tow ships through the 100 miles of treacherous waterway between the Roper Mouth and the Telegraph Depot.

Loss of the *Young Australian*

The ship continued its duties in the Roper River as the construction crews completed their tasks and men and construction equipment were moved out.

There appears to be some confusion about the date of the wreck of the *Young Australian* which is curious. The ships log is quite clear about the date (30 December 1872) and the circumstances of the wreck. Relevant passages are quoted in Stephen Ashford's book and there seems little reason to doubt this record of the event. Captain Lowrie was at the helm at the time and as usual his record in the log is clear and concise.

The ship ran aground on a rocky headland in the river 20 km downstream (12.5 km in a direct line) from the Telegraph Depot and 6 km upstream from the present-day Aboriginal

Community of Ngukurr. Strenuous efforts to lighten the load and refloat the ship were made but proved unsuccessful and the ship was eventually abandoned. Her registration was struck off on 25 March 1874.

The Wreck Today

The *Young Australian* has lain abandoned in the Roper River now for 136 years. In the early days equipment was salvaged. Photographs exist of one of her paddle wheels set up as a water wheel in a creek on Groote Eylandt. Her wooden hull gradually rotted away and what is left above water level now is the engine and boiler.

The site is not easy to access. No road leads to the site although there is a boat ramp on the opposite bank 1.25 km downstream from the wreck. The wreck can be seen after a short boat ride from this ramp. The boat ramp is accessible from the Nathan River Road. The river is, of course, crocodile infested.

The timber hull of the ship had deteriorated significantly a long time ago and none of it is now visible above water level in recent photographs, even at low tide. The boiler and top parts of the engine are however visible and appear to have deteriorated little. Some parts of the engine have been removed including the cylinder top cover and piston rod guides and the paddle wheels.

The *Young Australian* is the oldest wreck in the Roper River and the only recorded paddle steamer wreck in Northern Territory waters.

Historic Individuals or Association:

1. Sir Charles Todd

Sir Charles Todd was one of Australia’s greatest engineers. Whilst he is best remembered for his role in the construction of the Overland Telegraph he showed leadership and great skill throughout his working life.

He was born in London on 7 July 1826 and arrived in Adelaide on 5 November 1855 to take up the post of South Australian Government Astronomer and Superintendent of Telegraphs, a post which he retained until his retirement in 1906. He was also South Australian Post Master General from 1870 to 1906. After Federation he remained in his old posts under the new Commonwealth Government arrangements by special provision.

He had married Alice Bell (1836-1898) on 5 April 1855, in London, just before departing for the colonies, his long and successful marriage was one of his great joys. His wife, Alice, lives on in Australia’s collective memory as she gave her name to Alice Springs - “The Alice”.

The greatest of his life works was the Overland Telegraph Line completed on 22 August 1872 whilst the first London/Adelaide telegraph message was sent on 22 October 1872 after a delay due to a cable fault in the submarine cable from Java to Port Darwin. The line stretching over 3176 km and involved the erection of 36,000 poles. It was one of the epic feats of Australian engineering.

Other telegraph projects for which Todd was responsible included:

- Adelaide to Melbourne: 1858
- Adelaide to Sydney: 1858
- SA regional towns: ongoing from about 1858

He also set up the Adelaide Astronomical Observatory and observed the transits of Venus in 1874 and 1882.

In the meteorological field he can arguably claim to be the first systematic meteorologist in Australia and arranged for data to be telegraphed from around South Australia on a daily basis to Adelaide. Todd was the first to make the connection between droughts in Australia and India attributed to what we now call the El Nino Effect.

He introduced street lighting in Adelaide from 1881 followed by the gradual spread of the system over time.

He was involved in many learned societies and was in fact responsible for the establishment of some of them in South Australia. These included:

- Royal Society, London
- Royal Meteorological Society, London
- Royal Astronomical Society, London
- Society of Electrical Engineers, London
- SA Royal Society
- SA Astronomical Society
- Adelaide Philosophical Society
- Council of the University of Adelaide

He was involved in establishing two Congregational Churches in Adelaide and followed a keen interest in photography as a hobby. Some of his photographs survive.

Todd was a fine applied scientist and technologist and a leading electrical engineer in Australia. His particular interests were:

- Astronomy
- Meteorology
- Telegraph communications
- Public administration

He was a very vigorous man in both private and public life:

- He was appointed Government Astronomer and Superintendent of Telegraphs at the age of 30.
- He remained in public service until shortly before his death at age 84. He was a South Australian Public Servant for 50 years and his overall public service spanned 63 years.
- He had close managerial and engineering involvement in the mammoth Overland Telegraph Line project.
- He had broad community and professional interests
- He had 6 children

Todd was knighted in 1893 and died on 29 January 1910 in Adelaide and is buried in an Adelaide cemetery.

His personal characteristics were a curious mixture of softer traits which made him an appealing and friendly character whilst he also possessed the enormous drive and energy which enabled him to reach such great heights. He was:

- Able, painstaking and industrious
- Had a good sense of humor and a tendency to use puns
- Was not a commanding personality
- Cared for his employees
- Able to establish excellent relationships with Aborigines
- Kind, bright, happy, amiable and generous
- Full of vitality, energy and drive
- One who inspired a strong sense of duty and loyalty
- A remarkable organizer
- A mathematical child prodigy
- Trusted by politicians
- A good judge of men
- A boyish sense of fun

2. Captain James Lowrie

Captain Lowrie was the master of the *Young Australian* from 22 December 1871 to 5 May 1873.

It is apparent that Lowrie was a captain with good skills and a high level of dedication. He overcame many difficulties during the time he was captain of the *Young Australian* and showed great flexibility in tackling the varied tasks which the ship performed.

He had little time to prepare the ship for the long voyage to the Top End when he took command in Adelaide. On the journey he had to solve some difficult repairs to the machinery in circumstances where spare parts were not available and great ingenuity was required to keep the ship going. At one point the air pump of the steam engine suffered a failed valve, which would have considerably disabled the ship had it needed to continue without being able to raise a proper operating vacuum. However the crew fabricated a replacement valve from materials available to them.

Fuel management was a great difficulty for the ship. There were only a limited number of places where coal could be purchased. Once the ship sailed for the Roper River there was no coal source. During the long trip up the West Coast Lowrie had to make judgments about how much coal he had available, and might be able to buy at future ports and over what parts of the voyage the ship needed to use sail.

Once in the Roper River the crew had to cut firewood on the banks and store it for future use as the ship went up and down the river. Not only was this task difficult and time consuming but there was an ever-present risk that the valuable firewood would be stolen by other ships.

Once in the Roper there were great problems with communications. There was, of course, no radio and there were very limited opportunities to receive telegrams which appeared to be the only form of long-distance communication. This often meant waiting for ships to arrive at the end of long journeys to tow them up the river.

The crew had to carry out all maintenance on the wooden ship and its machinery using whatever materials they carried and local timber. The tug was damaged on several occasions by the ships it was towing which were much larger than it and very difficult to control in the tight confines of the river channel. The loss of the *Young Australian* was at least partially due to damage to the stern of the ship which had occurred in a collision some time before. When the ship grounded the stern was forced down and water flooded through the damaged area which had only been partially repaired.

When the ship was not engaged in towing ships or transporting men or materials itself it carried out other tasks. The *Young Australian* crew carried out a survey of the river and placed navigation markers along the river to try to avoid the very sort of accident which ultimately claimed the *Young Australian*.

Lowrie showed commendable leadership of his small crew during his time as captain. It is apparent that Todd and others involved in the management of the Overland Telegraph project trusted him and continually asked him to carry out difficult and, at times, dangerous tasks.

Following the grounding of the *Young Australian* whilst she was towing the *Flying Cloud* downstream Lowrie tried every possible method of getting the ship free. An initial assessment of the ship showed that the hull timbers in the vicinity of the grounding point were intact but the hull had filled with water over the damaged stern. Lightening of load, towing by other vessels and levering with timbers were all tried unsuccessfully before the vessel was abandoned.

Following the demise of the *Young Australian*, Lowrie remained in the Roper carrying out other tasks including acting as customs officer. Later the South Australian Government arranged for a replacement ship for the *Young Australian*. This was the 27 ton steamer *Enterprise* which was towed from Brisbane where she had been purchased (or possibly chartered) by the *Lord Ashley*. The ships arrived at Maria Island on 12 May 1873. At this time Lowrie had become very sick with scurvy and was attempting to recover at Maria Island.

Later, after he recovered, Lowrie was given command of the *Enterprise*. This occurred some time between the arrival of the *Enterprise* in May 1873 and about August 1873. Unloading at the Depot continued until the arrival of the Wet Season at the end of 1873. By this time all materials for the re-poling of the line between about Tennant Creek and a point between the Roper and Katherine were at the Depot and the ships were released. Lowrie sailed the *Enterprise* back to Adelaide under steam.

Creative or Technical Achievement:

Nothing unusual or noteworthy is apparent in the design and construction of the *Young Australian*. She was a paddle steamer built at the time when the transition from paddle-powered to screw-powered steam ships was in progress. The use of paddles was favoured for tugs and persisted well into the 20th century in this application in some areas².

Her use to assist larger ships, many still sail-powered up the Roper River was a classic early application of steam power. Hence her use, at that time in history, was not unusual.

The concept of using a tropical river to provide closer access to a construction site, which was beset with problems during the Wet Season, was an inspirational strategic move which is typical of Sir Charles Todd and his trusted lieutenants. This involved the development of navigational methods for the Roper River (including the use of a tug to assist ships); the establishment of a camp (the Telegraph Depot) in inhospitable country with very long supply routes; the development of a track from the Telegraph Depot to the main line route near Mataranka and the re-allocation of construction tasks and priorities to utilise this new capability.

This sub-enterprise, added to the already major organisational arrangements for the Overland Telegraph Line, in a very short time, was highly creative and technically difficult.

² Refer to Appendix 2

Research Potential:

The research potential of the *Young Australian* is still considerable.

The archaeological potential of the wreck is clearly the most significant potential. Ships of this age are seldom found with machinery in such good condition. The engine and boiler are apparently virtually complete. Some components of the engine such as the top cylinder cover and apparently the piston and its piston rod are missing. It is clear that the paddle wheels are missing. The wooden parts of the ship are greatly eroded but many metal artefacts could still be recovered from the wreck. The author is not aware of any proposal to salvage or conserve any parts of the wreck.

Social:

The broader social impacts of the *Young Australian*, by association, on Australian society are enormous. The Overland Telegraph Line reduced communications time from England (or anywhere else in Europe) from months to hours. Furthermore the widespread deployment of the telegraph initiated an ongoing technological development which followed the telegraph quite quickly. The telephone came shortly after followed by the teletype and facsimile transmission. Later again the same systems of wires were used to distribute radio and television programs.

The *Young Australian* played a key role in making this communications revolution possible yet this role is, as yet, relatively unknown compared to the wider story of the Overland Telegraph Line.

The *Young Australian* story is another opportunity to reinforce the changes to society which the communications revolution has brought over the last 140 years.

Furthermore the *Young Australian* illustrates the changes in the maritime industry. She came early in the advent of steam power and represents one of the earliest and most economically significant uses of the steam ship – the tug. Throughout the history of mechanically powered ships no type has been more suggestive of power and flexibility than the tug. Whether used to move ships to or from their berths; move ships or barges up and down rivers or across oceans; carry out salvage tasks or in the erection of heavy machinery the tug has held a particular fascination for those who observe the sea.

The *Young Australian* was an early example of this type, although not particularly built with this use in mind. Comparison of the *Young Australian* with the powerful vessels which carry out similar tasks today provides a useful image of the development of maritime technology over the last 140 years.

Rarity:

The ship itself is not an example of a rare type for its time and purpose.

The wreck is rare in that there are no other sites of paddle steamer wrecks in Northern Territory waters and it is the oldest wreck in the Roper River.

Rarity in terms of relics of the construction phase of the Overland Telegraph is more significant. The work was carried out with simple and highly portable tools and we are told that much of the construction equipment was removed at the end of the project. The *Young Australian* is therefore one of the few remaining and probably the largest piece of construction machinery used in the Overland Telegraph project to remain in the construction area.

It should therefore be given high priority for protection and preservation. Preservation in-situ is very difficult as the wreck is located in a tidal river and is, at lowest water, only partially exposed. Also the site is remote and difficult to access.

Representativeness:

The *Young Australian* powerfully represents the spirit of exploration and development which led to the construction of the Overland Telegraph Line. That spirit was typical of the late nineteenth century but was later almost driven to extinction by the Economic Rationalists of the late twentieth century. The Overland Telegraph Line enterprise was technically difficult, involved construction of major infrastructure through remote and menacing country, and was achieved in a remarkably short time. The remains of the ship are one of the few substantial relics of the construction of the line. The remains represent an era which we now have difficulty imagining.

The *Young Australian* represents an early example of the Australian reputation for ingenuity. They had to find a new route and this route involved bringing sea-going ships far upstream in a dangerous tropical river. To achieve this safely and efficiently they needed a tug-boat but they were in a hurry and they had to use what they could obtain quickly. The *Young Australian* fell to hand and they improvised to make it suit the task.

The *Young Australian* represents a technology which was highly suited to its task at the time. The handling of sailing ships in any restricted waterway was difficult and the steam engine was pressed into this service long before it was used to propel ships across the oceans. The side-wheel paddle steamer was the most common early configuration and by chance highly suited to the task of the tug-boat. It was able to deliver large amounts of force at low (or zero) forward speed. This is what was needed from a tug.

The *Young Australian* now represents a technological era long passed. Steam ships powered by paddle wheels went out of technical favour late in the nineteenth century. Steam ships powered by reciprocating steam engines went out of technical favour in the middle of the twentieth century. Steam ships of any description are now largely restricted to two very specialised classes of naval vessels – nuclear submarines and the largest fleet aircraft carriers. Our community memory of old technologies soon fades unless new generations can see examples with their own eyes. The *Young Australian* offers a glimpse of that possibility.

Integrity/Intactness:

The ship has been in the water suffering gradual deterioration from various causes for 136 years. It is now highly degraded and will ultimately disappear if left where it is.

Integrity has been damaged by the removal of some parts of the visible portions of the wreck. There is still the potential for further components to be stolen.

Statement of Significance:

The remains of the *Young Australian* are a significant and tangible reminder of one of the greatest events and achievements in Australian history – the construction of the Overland Telegraph Line. It is also a tangible link to the association and the specific role that the Roper River and the Northern Territory played in the construction of the Overland Telegraph Line and its subsequent connection with the submarine cable from Java at Palmerston (Darwin).

The *Young Australian* is the oldest known shipwreck in the Roper River and the only known paddle steamer wreck in the Northern Territory.

The *Young Australian* is an example of mid-nineteenth century marine technology when the application of steam power to shipping was quite new and innovative. The successful operation of what was, at the time, advanced technology in such a remote part of the world is a tribute to the marine engineers and ships’ engineers of that era.

The surviving fabric of the *Young Australian* is also a reminder of the dangers and hardships faced and the achievements of the construction workers, their supervisors and engineers, ship’s captains, crews and the haulage contractors involved in the project. They all worked, lived and died in harsh conditions in virtually unexplored territory far from their homes and loved ones.

Assessed Significance:

State

Interpretation Plan

This nomination was written in 2008, before the new interpretation model was included in the Guidelines. Negotiations with owners have therefore been around a cast bronze plate approximately 300 x 400. It has since taken approximately two years to obtain the approval of owners to proceed. On this basis it is proposed to proceed with the traditional bronze plate.

The plaque will be mounted in a car park at a site called Tomato Island about 1.25 km downstream from the wreck site. This is the closest point that visitors can approach the wreck site by road and is the closest launching site to visit the wreck site by boat.

Proposed Plaque Wording

SS Young Australian

Charles Todd showed great ingenuity during construction of the Overland Telegraph Line when he shipped supplies up the Roper River to reduce overland transport during the Wet Season. The Lower Roper is treacherous and the ships used required assistance from a tug. The 90 ton paddle steamer *Young Australian* was employed as a tug but was wrecked on 30th December 1872 whilst towing the *Flying Cloud*. The wreck remains in the river as a reminder of the hazards of the great engineering feats of the nineteenth century.

87 words

References:

- 1) The Wreck of the Young Australian, Roper River, Stephen A. Ashford, Office of Environment and Heritage, Northern Territory Government, Monograph Series 1, June 2004, ISSN 1832-0155.
- 2) Wrecks in Darwin Waters, Tom Lewis, Turton & Armstrong, 1992, ISBN: 0 908031 459.
- 3) Steam at Sea, Two Centuries of Steam-powered Ships, Denis Griffiths, Conway Maritime Press, London, 1997, ISBN 0 85177 666 3.
- 4) Mr Stuart's Track, John Bailey, Pan Macmillan Australia Pty Ltd, 2006, ISBN 978 0 3304 2361 8

Prepared by:

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APPENDIX 1

Technical Details of the *Young Australian*

Built: Blackwall, on the Thames River about 5 km east of Tower Bridge, England, 1853.

Dimensions: Length: 94 feet
Beam: 17 feet

Construction: Wooden frames and planking.
One deck, no galley, some records state two masts but photographs show only one mast.

Propulsion: 40 nominal horsepower single cylinder vertical "grasshopper" side lever steam engine
(see Note 1 below) driving side mounted paddle wheels. The engine drove the paddles direct from the crankshaft. It is known that the engine was condensing. Bore and stroke are not available at this time. The ship was rigged for sailing when this was appropriate. [It was usual for steam ships to also be rigged for sailing during this era].

Tonnage:	Tonnage under tonnage deck:	90.01 tons
	Other enclosed spaces above deck:	2.58 tons
	Gross tonnage as a sailing ship:	92.59 tons
	If steamer allowance for propelling machinery:	58.04 tons

Registration: Young Australian, listed in August 1860 on the Register of British Ships, Main Register subsequent to the Merchant Shipping Act 18534, Port Adelaide (NAA: A7509). The official registration number of the vessel was 40537.

Removed 25 March 1874 after attempts at salvage were abandoned.

Purchase by SA Government:
Purchased from William Wells on 22 December 1871 for £1000.
Transfer of ownership occurred at Darwin on 18 January 1872.

Note 1

Side lever engines were common at this time as they placed much of the engine weight low in the ship and had the crankshaft mounted high on the engine so that it was at a convenient height for the mounting of the paddle wheels. The cylinder was vertical with the piston rod protruding from the top of the cylinder.

A variant of the type is referred to as a "Grasshopper" side lever engine. In this variant the fulcrum of the side levers was at one end of the engine so that the piston rod and connecting rod moved up and down in unison instead of in opposition as in the conventional type of side lever engine. The *Young Australian* appears to have been equipped with such an engine as the side levers and lever fulcrums are visible considerably aft of the crankshaft and cylinder in some recent photographs (see the illustration on the front cover of this document). The following explanation of operation is based on the "grasshopper" type.

The drive train was as follows:

- The top of the piston rod carried a crosshead (across the ship) to enable the drive rods to pass down each side of the cylinder.
- The two drive rods connected the ends of the crosshead to one end of the side levers.
- The side levers were mounted low at either side of the engine with a fulcrum behind the engine. One end of the side levers was near the centreline of the cylinder. Both side levers moved in unison.
- Another crosshead connected the ends of the side levers below the crankshaft. From the centre of this crosshead a connecting rod drove up to the single crank on the crankshaft at the centreline of the ship.
- The crankshaft had two bearings mounted either side of the crank which had double webs. The connecting rod imparted rotating motion to the crankshaft which in turn drove the paddle wheels.

The cylinder, crankshaft, main bearings, top end of the connecting rod, side levers and main frames of the engine can be plainly seen on the wreck in recent times. The crankshaft/paddle shaft has been cut off on the starboard side (at least) presumably when the paddle wheel was removed to be used elsewhere. The cut appears to be clean as if it was sawn.

APPENDIX 2

Paddle Steamers used as Tugs

Denis Griffiths associates the later uses of the side-lever engine directly with the of the type in tugs:

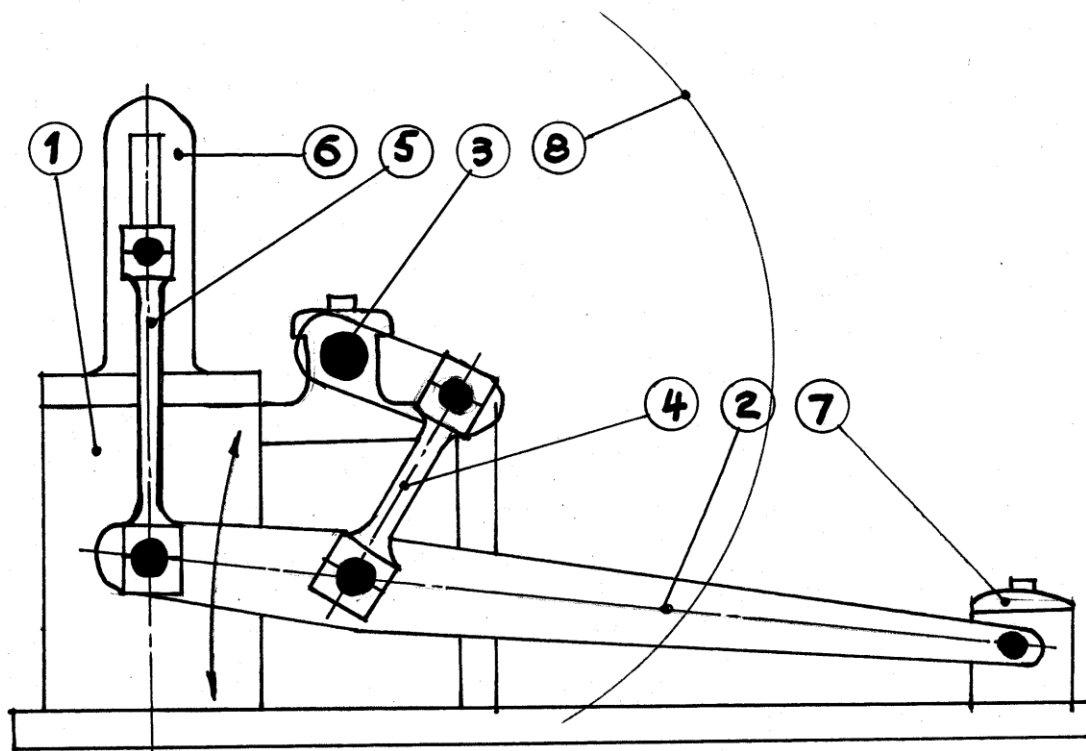
"The side-lever engine did survive a little longer in modified form, the most common being the "Grasshopper " type with side-lever pivots at the opposite end of the levers from the cylinder drive. Air pump and paddle wheel connecting rod attachments were towards the middle of the levers. Engines of this type were fitted in smaller craft, generally tugs, a pair going into the tug *Old Trafford* built for the Manchester Ship Canal Company in 1907 by Joseph Eltringham of South Shields. These surface condensing side-lever engines were made by Hepple & Co., also of South Shields, who supplied the engines for three sister tugs built around the same time; in 1903 two sister tugs were built and engined in South Shields by J. P. Reynolds & Sons"³.

The paddle-powered steam tug *Old Trafford* was a late build date for a paddle-powered vessel. She served as a tug on the Manchester Ship Canal for 40 years before being sold for service on the Tyne before retirement. This ship, now named *Reliant* is on display at the National Maritime Museum at Greenwich, London. ⁴

The diagram below shows how this type of engine worked. Modern photographs of the *Young Australian* show conclusively that this was the type of engine fitted to the ship.

³ Denis Griffiths, *Steam at Sea*, page 15-16.

⁴ Denis Griffiths, *Steam at Sea*, page 15-16.



KEY

- 1 CYLINDER
- 2 BEAM
- 3 CRANKSHAFT
- 4 CONNECTING ROD
- 5 SIDE ROD (ONE EACH SIDE)
- 6 PISTON ROD GUIDE
- 7 BEAM FIXED END PIVOT BEARINGS
- 8 PADDLE WHEEL

**SIDE LEVER BEAM ENGINE
"GRASSHOPPER" SUB-TYPE**

NTS OWEN PEAKE 8 JUNE 2008

APPENDIX 3

Maps Showing the location of the Wreck of the *Young Australian*

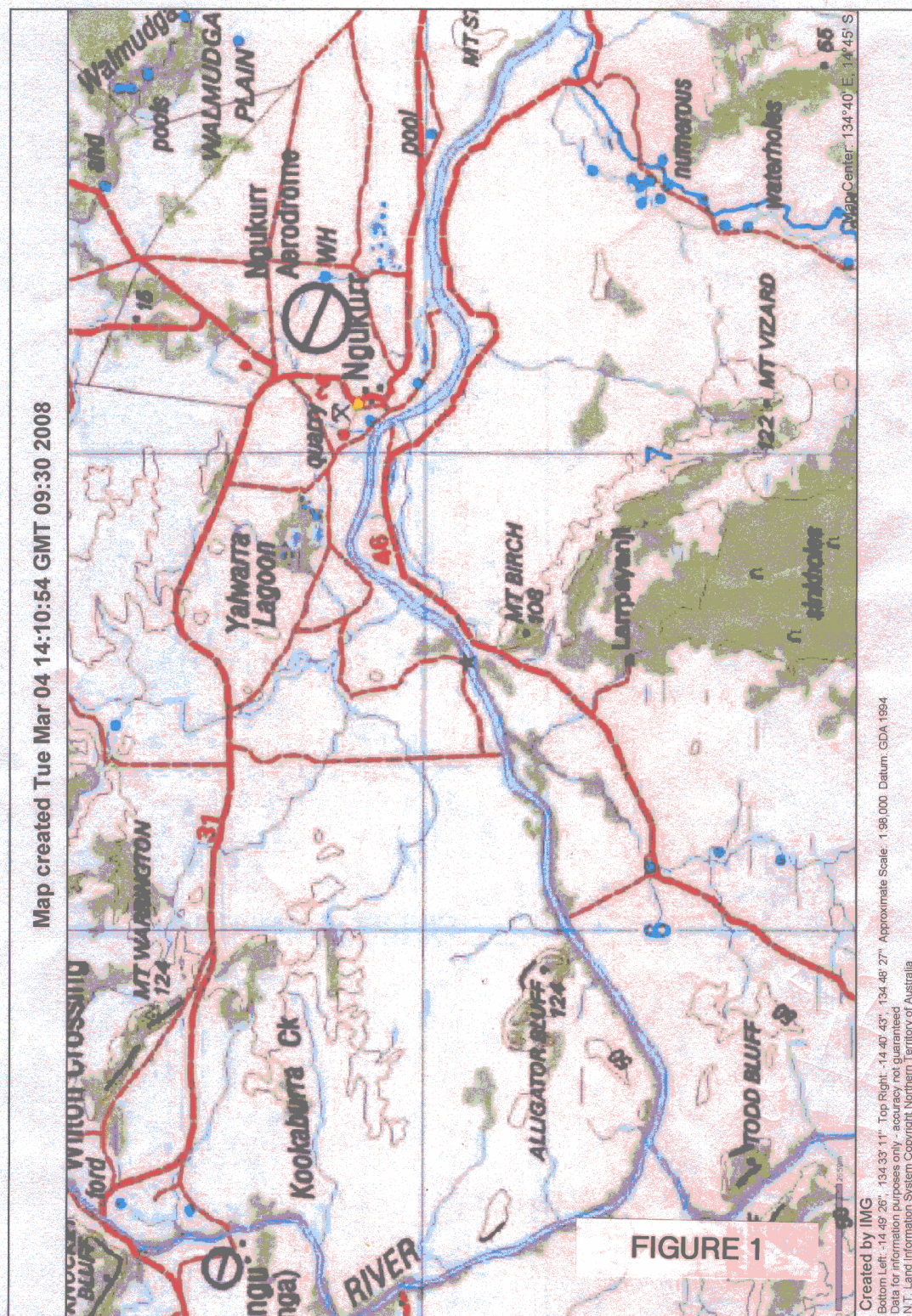
Figure 1 Map of general area of lower Roper River

Figure 2 Map of Location of Telegraph depot and wreck of Young Australian

Figure 3 Map of Location of wreck of Young Australian with respect to Ngukurr Community

Figure 4 Map of Location of boat ramp with respect to wreck of Young Australian

Figure 5 Map of Location of wreck of Young Australian in the Roper River



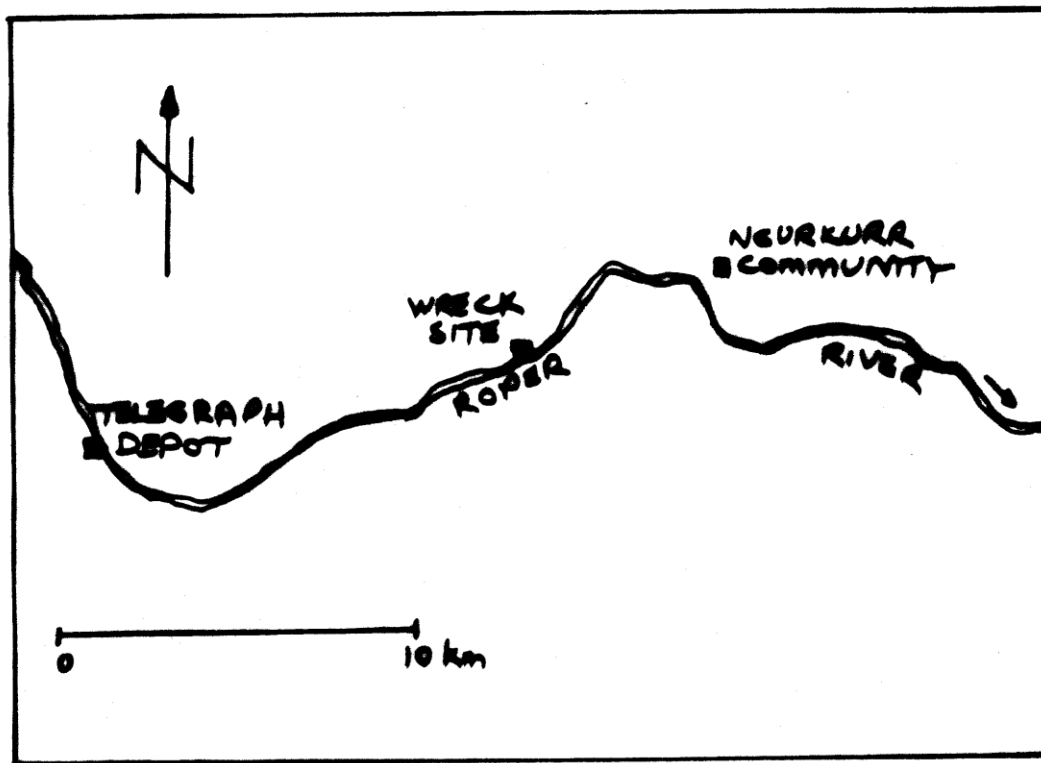


FIGURE 2

**Location of Telegraph Depot and Wreck of Young
Australian**

Direct distance from Telegraph Depot to wreck 12.5 km

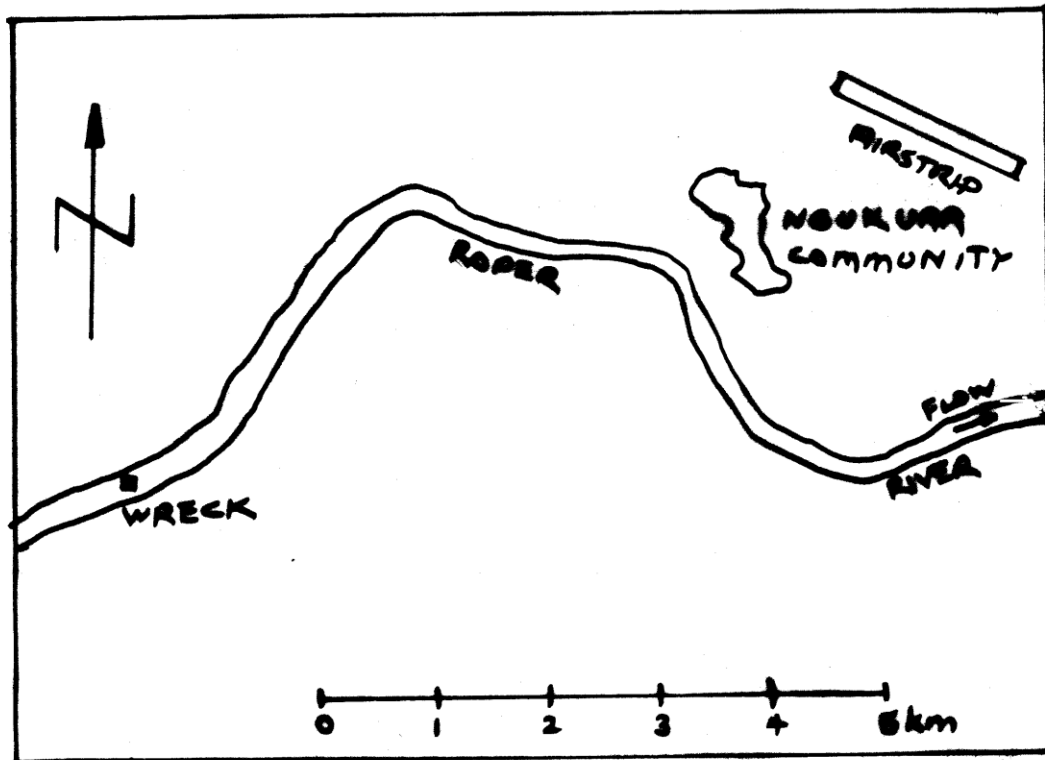


FIGURE 3

**Location of Wreck of Young Australian
with respect to Ngukurr Community**

Distance between wreck and Ngukurr Community 6 km

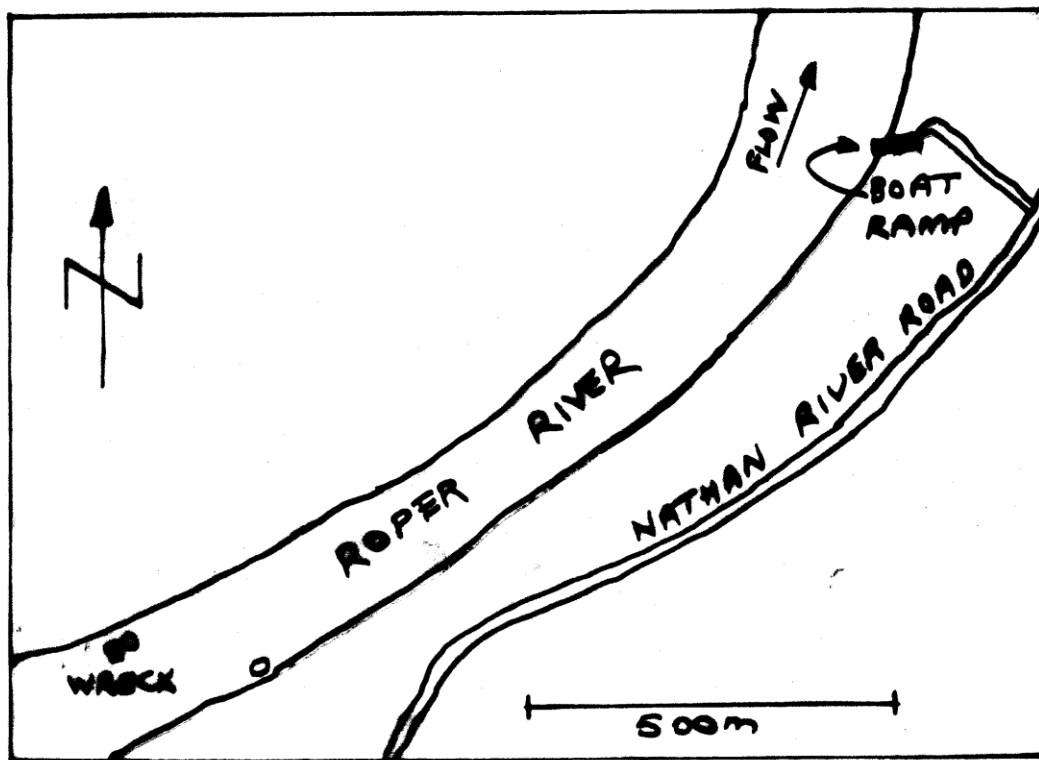


FIGURE 4

**Location of Boat Ramp with respect to Wreck of
Young Australian**
Distance between wreck and boat ramp is 1250 metres

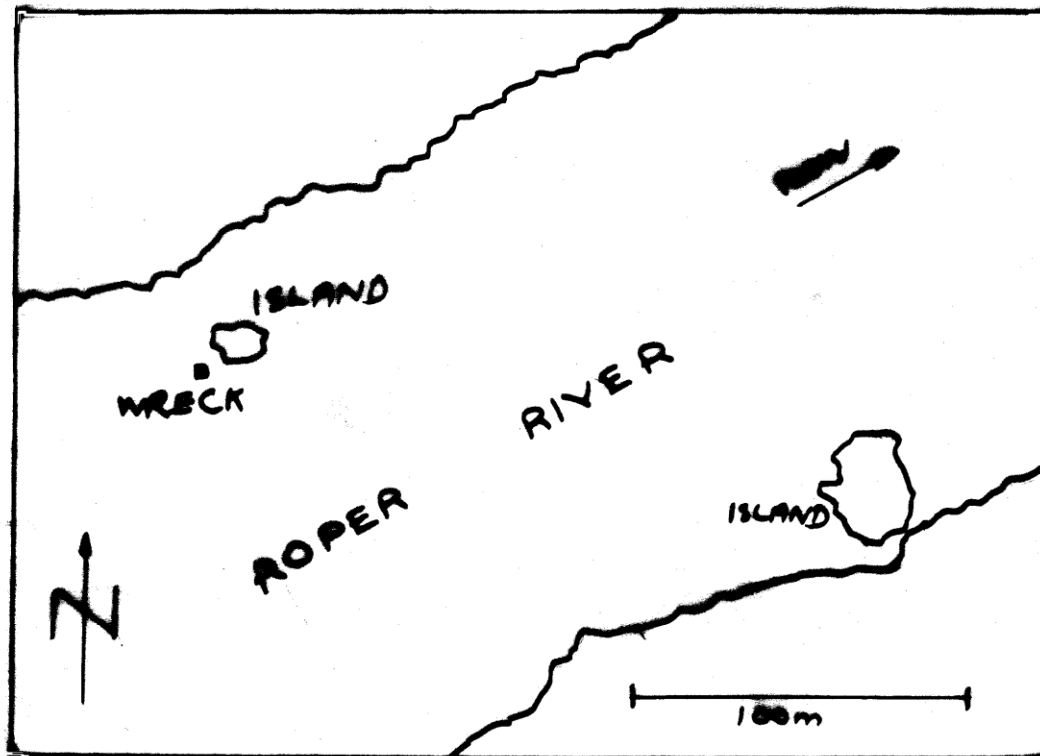


FIGURE 5

**Location of Wreck of Young Australian
in Roper River**
Distance between the two small islands is 200 metres
Location of wreck 14°45'09"S 134°40'50.4"E

APPENDIX 4

Photographs



The wreck of the *Young Australian*, with the boiler on the left and the engine in the centre. The large round hole at water level is the open top of the cylinder as the cylinder cover and piston have been removed.



The wreck of the *Young Australian*, looking downstream, with the boiler in the centre of the picture with the engine behind it.




The Boiler of the *Young Australian*.



The boat ramp downstream from the wreck site looking upstream towards the wreck which is not visible 1.25 km away.

APPENDIX 5

Copies of Letters of Approval

 NTLC <u>NORTHERN</u> <u>TERRITORY</u> <u>LAND</u> <u>CORPORATION</u> ABN 74 284 633 687	<p>2nd Floor, Cavenagh House 38 Cavenagh Street DARWIN NT 0800</p> <p>Our Ref: 2006/0001 Your Ref:</p> <p>30 APR 2010</p> <p>Ms Bronwyn Russell Director Engineers Australia Northern Division GPO Box 417 DARWIN NT 0801</p> <p>Dear Bronwyn</p> <p>RE: PROPOSAL BY ENGINEERS AUSTRALIA NORTHERN DIVISON Recommendation for an Australian Engineering Heritage Plaque for the Wreck of the SS "Young Australian" in the Roper River</p> <p>David Ritchie, the Chief Executive of the Department of Lands and Planning has passed your letter of 7 April 2010 to me as this Corporation is the owner of NT Portion 819 (St. Vidgeon) adjacent to the Roper River.</p> <p>The Corporation was not made aware of your request of 10 July 2008 to the then Department of Planning and Infrastructure.</p> <p>I am pleased to advise that the Corporation is agreeable to the erection of the proposed plaque on NT Portion 819 at the Tomato Island boat ramp or generally on NT Portion 819 in the vicinity of the wreckage.</p> <p>The Corporation has a management agreement with the Parks and Wildlife Commission for the use and management of St. Vidgeon as a part of the proposed Limmen National Park. Once you determine the actual location of the plaque, you should clear this location with the Parks and Wildlife Commission.</p>	<p>GPO Box 326 DARWIN NT 0801 Telephone: (08) 8999 3863 Facsimile: (08) 8999 6939</p>
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- 2 -

The nomination has the full support of this Corporation and I wish you well in bringing the matter to a successful completion.

Yours sincerely,


PETER BLAKE
Chairman

27 April 2010



DEPARTMENT OF
NATURAL RESOURCES, ENVIRONMENT, THE ARTS AND SPORT

Our ref HAC2001/325-0003

Chief Executive
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PALMERSTON NT 0831
Tel 08 8999 3662
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Email jim.grant@nt.gov.au

Ms Bronwyn Russell
Director
Engineers Australia Northern Division
GPO Box 417
DARWIN NT 0801

Dear Ms Russell

Thank you for your letter of 7 April 2010 seeking in principle approval for the installation of a commemorative plaque for the wreck of the *SS Young Australian* within vacant Crown Land, NT Portion 4325.

On 28 August 2008 the government department responsible for managing NT Portion 4325, the Department Planning and Infrastructure, supported your request (see attachment). My department also supports your proposal for national recognition of this highly significant declared heritage place.

However as the plaque will be placed at the public boat ramp on the Roper River my department cannot be held responsible for any possible damage or loss of the plaque.

If you have any queries regarding this matter please contact Mr Michael Wells, Director Heritage Branch, on telephone 89995036, who will be pleased to assist.

Yours sincerely

A handwritten signature in black ink, appearing to read "Jim Grant".

JIM GRANT

14 April 2010

www.nt.gov.au/nretas



DEPARTMENT OF
PLANNING AND INFRASTRUCTURE

www.dpi.nt.gov.au

Our ref DDP12008/0001-0267

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Mr Peter Hagan
President
Engineers Australia Northern Division
GPO Box 417
DARWIN NT 0801

Dear Mr Hagan

Thank you for your letter of 10 July 2008 seeking in principle approval of the proposed nomination of the awarding of an Engineers Australia Heritage plaque to publicly recognise, as part of the Territory's engineering heritage, the wreck of the *Young Australian* located in the Roper River (NT Portion 4352). This Department commends and fully supports this nomination.

I note that as the plaque is to be erected on a boat ramp under the control of the Parks and Wildlife Service of the Northern Territory, in principle approval is also being sought from them.

I wish you every success with this initiative.

Yours sincerely

RICHARD HANCOCK
Chief Executive Officer

28 August 2008

SS “Young Australian”

CHANGE MANAGEMENT

VERSION 1	6 June 2007
VERSION 2	8 June 2007
VERSION 3	2 July 2007
VERSION 4	15 Feb 2008 6214 words
VERSION 5	24 Feb 2008 6704 words
VERSION 6	4 March 2008 6792 words
VERSION 7	8 June 2008 6963 words
VERSION 8	18 June 2008 6975 words
VERSION 9	19 June 2008 added plaque wording. 7070 words
VERSION 10	7 July 2010 Added Appendix 5 - Letters of Approval 7075 words